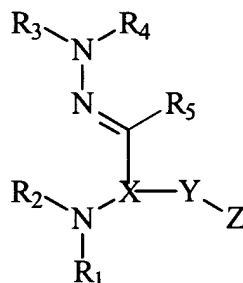


CLAIMS

What is claimed is:

1. An organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:

(a) a charge transport material having the formula



where R₁, R₂, R₃, and R₄ are, independently, an alkyl group, an alkaryl group, an aryl group, or a part of a cyclic group;

R₅ is hydrogen, an alkyl group, an alkaryl group, an aryl group, or a heterocyclic group;

X comprises an aromatic group;

Y is a linking group having the formula -(CH₂)_m-, branched or linear, where m is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR₆ group, a CHR₇ group, or a CR₈R₉ group where R₆, R₇, R₈, and R₉ are, independently, H, hydroxyl group, thiol group, an alkyl group, an alkaryl group, a heterocyclic group, or an aryl group; and

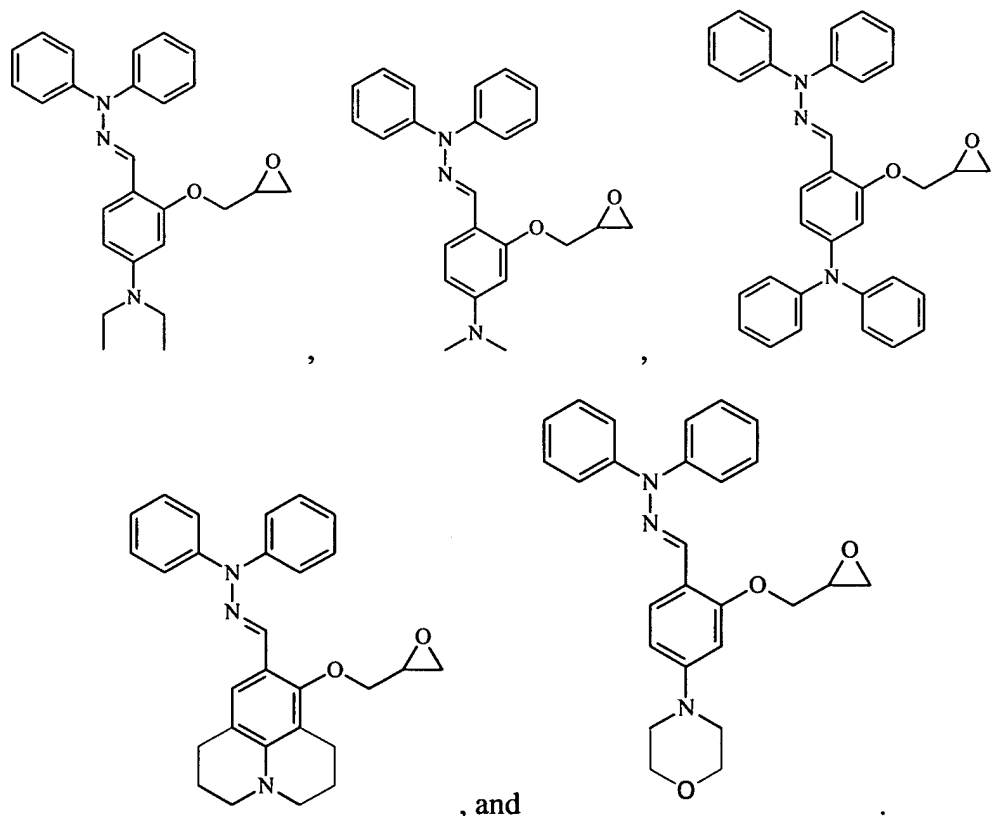
Z comprises an epoxy group; and

(b) a charge generating compound.

2. An organophotoreceptor according to claim 1 wherein Y is a -Y'(CR₁₀R₁₁)_n- group where n is an integer between 1 and 19, Y' may be O, S, or NR₁₂, and R₁₀, R₁₁, R₁₂ are, independently, hydrogen, an alkyl group, an alkaryl group, an aryl group, or a part of a cyclic group.

3. An organophotoreceptor according to claim 1 wherein X comprises an aryl group.

4. An organophotoreceptor according to claim 1 wherein the charge transport material has a formula selected from the group consisting of the following:



5. An organophotoreceptor according to claim 1 wherein the photoconductive element further comprises a second charge transport material.

6. An organophotoreceptor according to claim 5 wherein the second charge transport material comprises an electron transport compound.

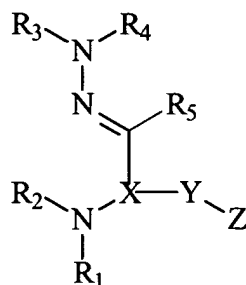
7. An organophotoreceptor according to claim 1 wherein the photoconductive element further comprises a binder.

8. An electrophotographic imaging apparatus comprising:

(a) a light imaging component; and

(b) an organophotoreceptor oriented to receive light from the light imaging component, the organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:

(i) a charge transport material having the formula



where R_1 , R_2 , R_3 , and R_4 are, independently, an alkyl group, an alkaryl group, an aryl group, or a part of a cyclic group;

R_5 is hydrogen, an alkyl group, an alkaryl group, an aryl group, or a heterocyclic group;

X comprises an aromatic group;

Y is a linking group having the formula $-(\text{CH}_2)_m-$, branched or linear, where m is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR_6 group, a CHR_7 group, or a CR_8R_9 group where R_6 , R_7 , R_8 , and R_9 are, independently, H, hydroxyl group, thiol group, an alkyl group, an alkaryl group, a heterocyclic group, or an aryl group; and

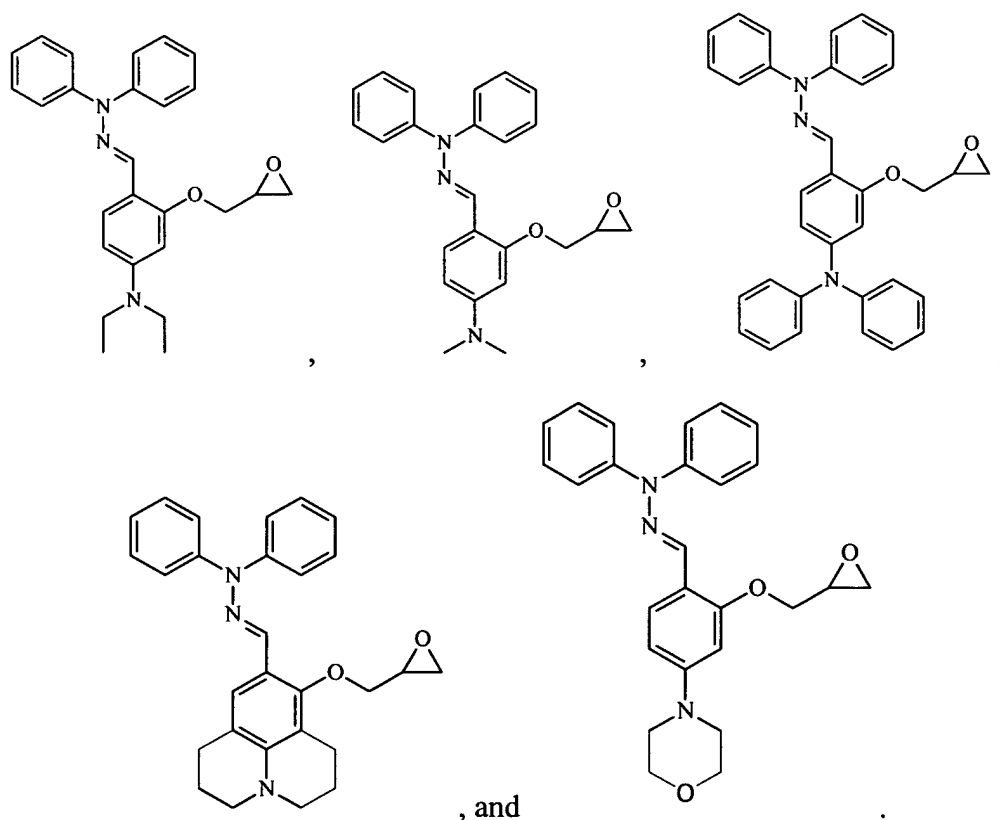
Z comprises an epoxy group; and

(ii) a charge generating compound.

9. An electrophotographic imaging apparatus according to claim 8 wherein Y is a $-\text{Y}'(\text{CR}_{10}\text{R}_{11})_n-$ group where n is an integer between 1 and 19, Y' may be O, S, or NR_{12} , and R_{10} , R_{11} , R_{12} are, independently, hydrogen, an alkyl group, an alkaryl group, an aryl group, or a part of a cyclic group.

10. An electrophotographic imaging apparatus according to claim 8 wherein X comprises an aryl group.

5 11. An electrophotographic imaging apparatus according to claim 8, wherein the charge transport material has a formula selected from the group consisting of the following:



10 12. An electrophotographic imaging apparatus according to claim 8 wherein the photoconductive element further comprises a second charge transport material.

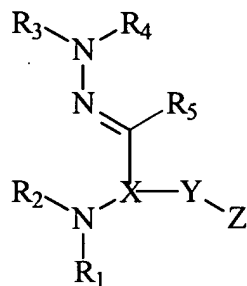
15 13. An electrophotographic imaging apparatus according to claim 12 wherein second charge transport material comprises an electron transport compound.

14. An electrophotographic imaging apparatus according to claim 8 further comprising a liquid toner dispenser.

15. An electrophotographic imaging process comprising;

(a) applying an electrical charge to a surface of an organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising

(i) a charge transport material having the formula



where R₁, R₂, R₃, and R₄ are, independently, an alkyl group, an alkaryl group, an aryl group, or a part of a cyclic group;

R₅ is hydrogen, an alkyl group, an alkaryl group, an aryl group, or a heterocyclic group;

X comprises an aromatic group;

Y is a linking group having the formula -(CH₂)_m-, branched or linear, where m is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR₆ group, a CHR₇ group, or a CR₈R₉ group where R₆, R₇, R₈, and R₉ are, independently, H, hydroxyl group, thiol group, an alkyl group, an alkaryl group, a heterocyclic group, or an aryl group; and

Z comprises an epoxy group; and

(ii) a charge generating compound.

(b) imagewise exposing the surface of the organophotoreceptor to radiation to dissipate charge in selected areas and thereby form a pattern of charged and uncharged areas on the surface;

(c) contacting the surface with a toner to create a toned image; and

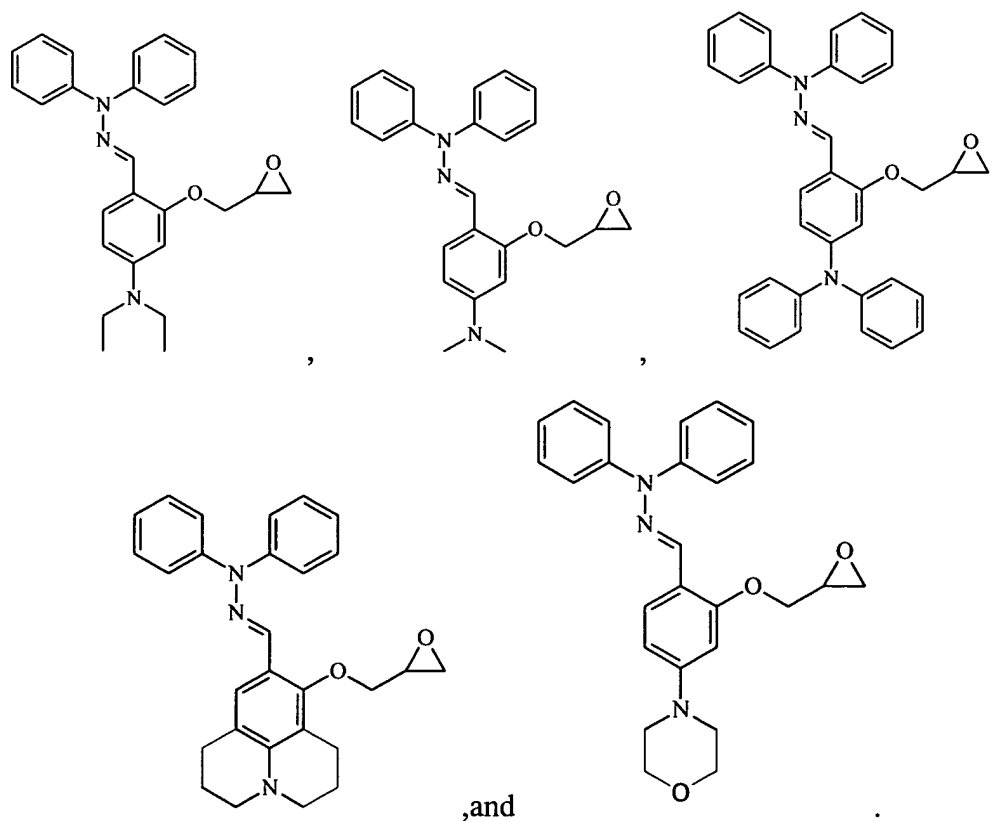
(d) transferring the toned image to substrate.

16. An electrophotographic imaging process according to claim 15 wherein Y is a $-Y'(CR_{10}R_{11})_n-$ group where n is an integer between 1 and 19, Y' may be O, S, or NR_{12} , and R_{10} , R_{11} , R_{12} are, independently, hydrogen, an alkyl group, an alkaryl group, an aryl group, or a part of a cyclic group.

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17. An electrophotographic imaging process according to claim 15 wherein X comprises an aryl group.

18. An electrophotographic imaging process according to claim 15 wherein the charge transport material has a formula selected from the group consisting of the following:



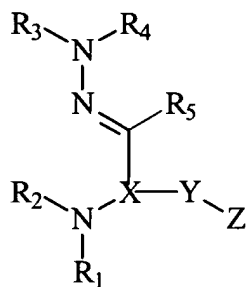
19. An electrophotographic imaging process according to claim 15 wherein the photoconductive element further comprises a second charge transport material.

20. An electrophotographic imaging process according to claim 19 wherein the second charge transport material comprises an electron transport compound.

21. An electrophotographic imaging process according to claim 15 wherein the photoconductive element further comprises a binder.

22. An electrophotographic imaging process according to claim 15 wherein the toner comprises a liquid toner comprising a dispersion of colorant particles in an organic liquid.

23. A charge transport material having the formula



where R_1 , R_2 , R_3 , and R_4 are, independently, an alkyl group, an alkaryl group, an aryl group, or a part of a cyclic group;

R_5 is hydrogen, an alkyl group, an alkaryl group, an aryl group, or a heterocyclic group;

X comprises an aromatic group;

Y is a linking group having the formula $-(CH_2)_m-$, branched or linear, where m is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR_6 group, a CHR_7 group, or a CR_8R_9 group where R_6 , R_7 , R_8 , and R_9 are, independently, H, hydroxyl group, thiol group, an alkyl group, an alkaryl group, a heterocyclic group, or an aryl group; and

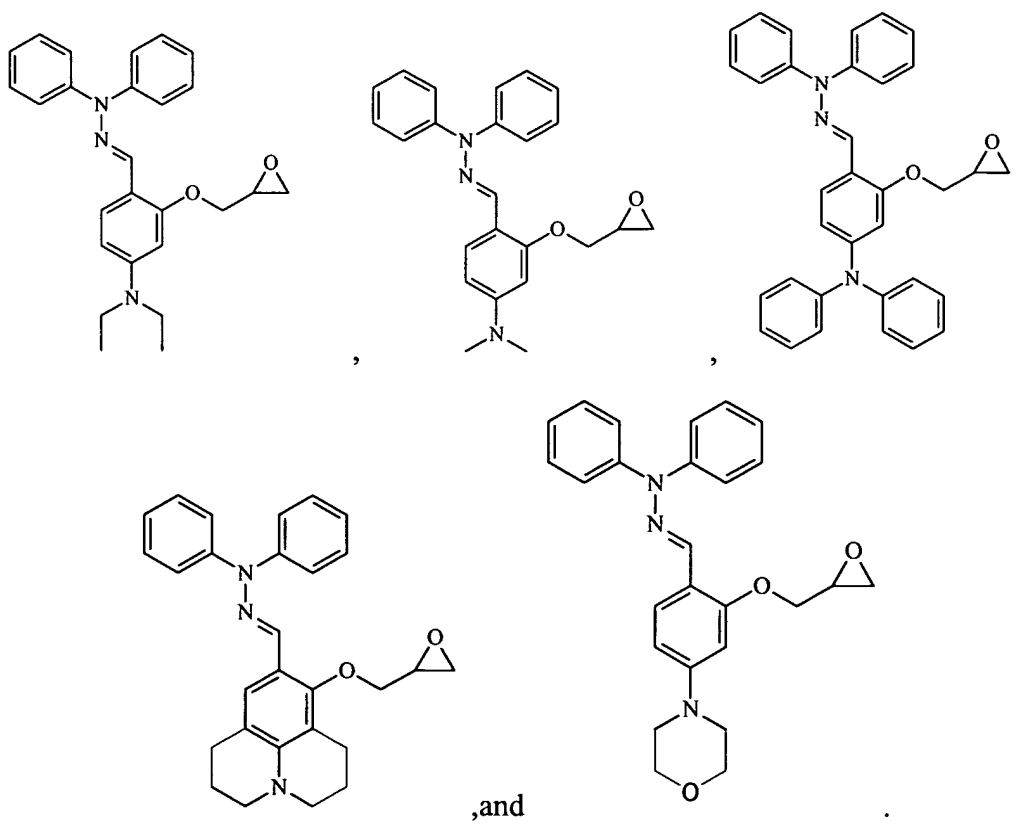
Z comprises an epoxy group.

24. A charge transport material according to claim 23 wherein Y is a $-Y'(CR_{10}R_{11})_n-$ group where n is an integer between 1 and 19, Y' may be O, S, or NR_{12} , and R_{10} , R_{11} , R_{12} are, independently, hydrogen, an alkyl group, an alkaryl group, an aryl group, or a part of a cyclic group.

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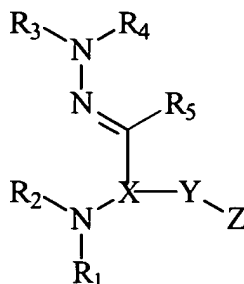
25. A charge transport material according to claim 23 wherein X comprises an aryl group.

26. A charge transport material according to claim 23 wherein the charge
10 transport material has a formula selected from the group consisting of the following:



27. A polymeric charge transport compound prepared by the reaction of an epoxy group in a compound having the formula

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where R_1 , R_2 , R_3 , and R_4 are, independently, an alkyl group, an alkaryl group, an aryl group, or a part of a cyclic group;

R_5 is hydrogen, an alkyl group, an alkaryl group, an aryl group, or a heterocyclic group;

X comprises an aromatic group;

Y is a linking group having the formula $-(CH_2)_m-$, branched or linear, where m is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR_6 group, a CHR_7 group, or a CR_8R_9 group where R_6 , R_7 , R_8 , and R_9 are, independently, H, hydroxyl group, thiol group, an alkyl group, an alkaryl group, a heterocyclic group, or an aryl group; and

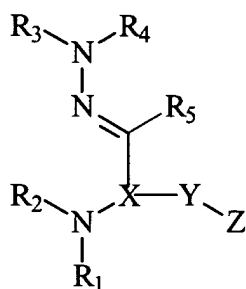
Z comprises an epoxy group bonded with a functional group in a polymeric binder.

28. A polymeric charge transport compound according to claim 27 wherein the functional group of the binder is selected from the group consisting of hydroxyl group, carboxyl group, an amino group, and thiol group.

29. A polymeric charge transport compound according to claim 27 wherein a crosslinking agent is bonded between the epoxy group and the functional group of the binder.

30. An organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:

(a) a polymeric charge transport compound prepared by the reaction of an epoxy group in a compound having the formula



where R₁, R₂, R₃, and R₄ are, independently, an alkyl group, an alkaryl group, an
 5 aryl group, or a part of a cyclic group;

R₅ is hydrogen, an alkyl group, an alkaryl group, an aryl group, or a heterocyclic group;

X comprises an aromatic group;

Y is a linking group having the formula -(CH₂)_m-, branched or linear, where m is
 10 an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR₆ group, a CHR₇ group, or a CR₈R₉ group where R₆, R₇, R₈, and R₉ are, independently, H, hydroxyl group, thiol group, an alkyl group, an alkaryl group, a heterocyclic group, or an aryl group; and

15 Z comprises an epoxy group bonded with a functional group in a polymeric binder; and

(b) a charge generating compound.

31. An organophotoreceptor according to claim 30 wherein the
 20 photoconductive element further comprises an electron transport compound.

32. An organophotoreceptor according to claim 30 wherein the functional group of the binder is selected from the group consisting of hydroxyl group, carboxyl group, an amino group, and thiol group.

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